IN THE CLAIMS:

1.   (Currently amended) A method for recovery of compromised instances of virtual mapping systems, comprising the steps of:

identifying a plurality of physical data elements for which a mapping table has been compromised;

determining whether anchor points exist for the plurality of physical data elements;

processing anchor points to find the data elements in managed order if anchor points exist; and

launching processing for each data element found to recover the compromised mapping table.

2.   (Currently amended) The method of claim 1, wherein the managed order comprises data elements with sequential addresses anchor points are logical pointers, each logical pointer pointing to a data element used to store a data unit and metadata associated with the data unit, the metadata specifying at least one management rule associated with the data unit.

3.   (Currently amended) The method of claim 1, wherein the managed order comprises data elements that are sorted by their physical address.

4.   (Original) The method of claim 1, wherein the managed order comprises data elements that are sorted by query frequency.

5.   (Original) The method of claim 1, further comprising:
finding data elements in physical space if anchor points do not exist.

6.   (Original) The method of claim 5, wherein the step of finding data elements in physical space comprises at least one of a sequential scan, random entry, and a binary search.

7.   (Currently amended) An apparatus for recovery of compromised instances of virtual mapping systems, comprising:

identification means for identifying a plurality of physical data elements for which a mapping table has been compromised;

determination means for determining whether anchor points exist for the plurality of physical data elements;

first processing means for processing anchor points to find the data elements in managed order if anchor points exist; and

second processing means for processing each data element found to recover the compromised mapping table.

8.   (Currently amended) The apparatus of claim 7, wherein the ~~managed order comprises data elements with sequential addresses~~ anchor points are logical pointers, each logical pointer pointing to a data element used to store a data unit and metadata associated with the data unit, the metadata specifying at least one management rule associated with the data unit.

9.   (Currently amended) The apparatus of claim 7, wherein the managed order comprises data elements that are sorted by their physical address.

10.   (Original) The apparatus of claim 7, wherein the managed order comprises data elements that are sorted by query frequency.

11.   (Original) The apparatus of claim 7, further comprising:
means for finding data elements in physical space if anchor points do not exist.

12.   (Original) The apparatus of claim 11, wherein the means for finding data elements in physical space comprises at least one of a sequential scan, random entry, and a binary search.

13. (Newly added) The method of Claim 1, wherein the step of launching processing for each data element found comprises launching processing of a first element and a second element in parallel.

14. (Newly added) The method of Claim 1, wherein the step of launching processing for each data element found comprises processing at least one forward pointer from a found anchor point and processing in parallel at least one backward pointer from an alternate anchor point.

15. (Newly added) The method of Claim 1, wherein at least some of the data elements include a first pointer to a previous version of the data element and a second pointer to a next version of the data element.

16. (Newly added) The method of Claim 1, wherein at least some of the data elements include a first pointer to a next data element of a logical sequence.

17. (Newly added) The method of Claim 16, wherein the logical sequence is a track logical sequence, and wherein the next data element is a next track in the track logical sequence.

18. (Newly added) The method of Claim 1, wherein at least one of the data elements has associated metadata that indicates at least two management rules associated with the at least one data element.

19. (Newly added) The method of Claim 18, wherein the at least two management rules are a logical sequence and a mirrored redundancy group.

20. (Newly added) A method of recovering a virtual mapping of data elements, comprising steps of:

responsive to a determination that the virtual mapping is compromised, traversing the data elements to find links to other of the data elements; and

reestablishing mapping entries with virtual addresses stored in the data elements.